

Claim Amendments

Please amend claims 1, 4, 10, and 11, and please add new claims 13 and 14 as follows.

1 1. (currently amended) A stereoscopic microscope that enables a plurality of observers, including  
2 a first observer and a second observer to simultaneously observe substantially the same  
3 microscope image of an object, the stereoscopic microscope comprising:

4 a first observation device for use by the first observer;

5 a second observation device for use by the second observer;

6 a stereoscopic microscope body that includes an objective optical system and no more  
7 than a pair of zoom optical systems;

8 a first connector that is positioned on the stereoscopic microscope body in the vicinity  
9 that the optical axis of the objective optical system intersects with the stereoscopic microscope  
10 body, said first connector for attaching the first observation device; and

11 a second connector that is installed on the stereoscopic microscope body at a position that  
12 is the same level as, or above, the position that the first connector is installed on the stereoscopic  
13 microscopic body;

14 wherein

15 the first connector is located at a position on the stereoscopic microscope body, in relation  
16 to the optical axis of the objective optical system, that is closer to the objective optical system  
17 than is the position of the second connector.

1 2. (original) The stereoscopic microscope according to claim 1, wherein the second observation  
2 device is attached to the stereoscopic microscope body at the second connector and has a rotation  
3 axis around which the second observation device can be rotated, and

4 the angle between said rotation axis and the optical axis of the objective optical system, in  
5 the region from the observed object to the microscope body, is 15 degrees or less.

1 3. (original) The stereoscopic microscope according to claim 2, wherein:

2 the stereoscopic microscope body further comprising a first leading optical system for  
3 dividing the two light fluxes that transmit through the pair of zoom optical systems into four light  
4 fluxes, said first leading optical system leading these four light fluxes toward the second  
5 connector;

6 the second observation device has an ocular optical system that includes two eyepiece  
7 lenses;

8 of said four light fluxes, two light fluxes are led by the ocular optical system to said  
9 eyepiece lenses; and

10 by rotating the second observation device around the rotation axis, the two light fluxes  
11 that enter the ocular optical system may be switched to the other two of said four light fluxes.

1 4. (currently amended) ~~The stereoscopic microscope according to claim 3,~~ A stereoscopic  
2 microscope that enables a plurality of observers, including a first observer and a second observer  
3 to simultaneously observe substantially the same microscope image of an object, the stereoscopic  
4 microscope comprising:

5 a first observation device for use by the first observer;

6 a second observation device for use by the second observer;

7 a stereoscopic microscope body that includes an objective optical system and a pair of  
8 zoom optical systems;

9 a first connector that is positioned on the stereoscopic microscope body in the vicinity  
10 that the optical axis of the objective optical system intersects with the stereoscopic microscope  
11 body, said first connector for attaching the first observation device; and

12 a second connector that is installed on the stereoscopic microscope body at a position that  
13 is the same level as, or above, the position that the first connector is installed on the stereoscopic  
14 microscopic body;

15 wherein

16 the first connector is located at a position on the stereoscopic microscope body, in relation

17 to the optical axis of the objective optical system, that is closer to the objective optical system  
18 than is the position of the second connector;

19 the second observation device is attached to the stereoscopic microscope body at the  
20 second connector and has a rotation axis around which the second observation device can be  
21 rotated;

22 the angle between said rotation axis and the optical axis of the objective optical system, in  
23 the region from the observed object to the microscope body, is 15 degrees or less;

24 the stereoscopic microscope body further comprising a first leading optical system for  
25 dividing the two light fluxes that transmit through the pair of zoom optical systems into four light  
26 fluxes, said first leading optical system leading these four light fluxes toward the second  
27 connector;

28 the second observation device has an ocular optical system that includes two eyepiece  
29 lenses;

30 of said four light fluxes, two light fluxes are led by the ocular optical system to said  
31 eyepiece lenses;

32 by rotating the second observation device around the rotation axis, the two light fluxes  
33 that enter the ocular optical system may be switched to the other two of said four light fluxes; and

34 a pupil splitter unit for splitting a light flux into two light fluxes is provided near a  
35 location conjugate with the exit pupil of one of the pair of zoom optical systems.

1 5. (original) The stereoscopic microscope according to claim 1, wherein:

2 the first connector has a contact surface that contacts the first observation device for  
3 attaching the first observation device to the microscope body, said contact surface having its  
4 surface normal inclined toward the first observer; and

5 the second connector is positioned on the microscope body surface in a horizontal  
6 position from the first connector in a direction away from the first observer.

1 6. (original) The stereoscopic microscope according to claim 2, wherein:

2 the stereoscopic microscope body further comprises a second leading optical system that  
3 includes a plurality of reflecting surfaces and which makes four light fluxes from the light flux  
4 that transmits through the objective optical system, the second leading optical system leading  
5 these four light fluxes toward the second connector;

6 the second observation device has an ocular optical system that includes two eyepiece  
7 lenses;

8 of the four light fluxes, two light fluxes are led by the ocular optical system to the  
9 eyepiece lenses; and

10 by rotating the second observation device around the rotation axis, the two light fluxes  
11 that enter the ocular optical system may be switched to the other two of the four light fluxes;

12 wherein

13 each of the four light fluxes is reflected an even number of times by the plurality of  
14 reflecting surfaces.

1 7. (original) The stereoscopic microscope according to claim 2, wherein:

2 the stereoscopic microscope body further includes a first leading optical system for  
3 dividing the two light fluxes that transmit through the pair of zoom optical systems into four light  
4 fluxes, the first leading optical system leading these four light fluxes toward the second  
5 connector;

6 the second observation device includes a rotatable part having a rotation axis, the angle  
7 between the rotation axis and the optical axis of the objective optical system in a region between  
8 the observed object and the microscope body is in a range of 35 degrees up to and including 55  
9 degrees;

10 the second observation device further comprises an ocular optical system that includes  
11 two eyepiece lenses and a third leading optical system which leads the four light fluxes just  
12 before the rotatable part; and

13 the second observation device is so constructed that two of the four light fluxes enter  
14 within the rotatable part and the light fluxes that enter within the rotatable part are selected by

rotation of the rotatable part around the rotation axis.

8. (original) A stereoscopic microscope according to claim 7, wherein :

the third leading optical system includes a plurality of reflecting surfaces, and each of the four light fluxes is reflected an even number of times by the plurality of reflecting surfaces.

9. (original) The stereoscopic microscope according to claim 3, wherein:

the ocular optical system includes a pair of relay optical systems, a single image rotator, a pair of image formation optical systems, and a pair of eyepiece optical systems which include said eyepiece lenses;

the second observation device includes an intermediate tube which houses the pair of relay optical systems and the single image rotator, and an ocular tube that houses the pair of image formation optical systems and the pair of eyepiece optical systems;

the intermediate tube is connected to the second connector at one end and is rotatably connected to the ocular tube at the other end;

two light fluxes that pass through the pair of relay optical systems housed by the intermediate tube transmit through the image rotator; and

the image rotator is made to rotate by one-half the amount of rotation of the ocular tube.

10. (currently amended) ~~The stereoscopic microscope according to claim 3~~ A stereoscopic microscope that enables a plurality of observers, including a first observer and a second observer to simultaneously observe substantially the same microscope image of an object, the stereoscopic microscope comprising:

a first observation device for use by the first observer;

a second observation device for use by the second observer;

a stereoscopic microscope body that includes an objective optical system and a pair of zoom optical systems;

a first connector that is positioned on the stereoscopic microscope body in the vicinity

10 that the optical axis of the objective optical system intersects with the stereoscopic microscope  
11 body, said first connector for attaching the first observation device; and

12 a second connector that is installed on the stereoscopic microscope body at a position that  
13 is the same level as, or above, the position that the first connector is installed on the stereoscopic  
14 microscopic body;

15 wherein

16 the first connector is located at a position on the stereoscopic microscope body, in relation  
17 to the optical axis of the objective optical system, that is closer to the objective optical system  
18 than is the position of the second connector;

19 the second observation device is attached to the stereoscopic microscope body at the  
20 second connector and has a rotation axis around which the second observation device can be  
21 rotated;

22 the angle between said rotation axis and the optical axis of the objective optical system, in  
23 the region from the observed object to the microscope body, is 15 degrees or less;

24 the stereoscopic microscope body further comprising a first leading optical system for  
25 dividing the two light fluxes that transmit through the pair of zoom optical systems into four light  
26 fluxes, said first leading optical system leading these four light fluxes toward the second  
27 connector;

28 the second observation device has an ocular optical system that includes two eyepiece  
29 lenses;

30 of said four light fluxes, two light fluxes are led by the ocular optical system to said  
31 eyepiece lenses;

32 by rotating the second observation device around the rotation axis, the two light fluxes  
33 that enter the ocular optical system may be switched to the other two of said four light fluxes;

34 the ocular optical system includes a pair of relay optical systems, a single image rotator, a  
35 pair of image formation optical systems, and a pair of eyepiece optical systems including said  
36 eyepiece lenses;

37 the second observation device includes an intermediate tube which houses the pair of

38 relay optical systems having exit optical axes that are substantially parallel and the single image  
39 rotator, and an ocular tube which houses the pair of image formation optical systems and the pair  
40 of eyepiece optical systems, with the intermediate tube being connected to the second connector  
41 at one end;

42 the ocular tube is extendable from, and collapsible into, the intermediate tube over a  
43 range of movement in a direction of the exit optical axes of the pair of relay optical systems; and

44 exit pupils of the pair of relay optical systems are arranged near a middle position of the  
45 range of extending and collapsing movement of the ocular tube.

1 11. (currently amended) An observation device that is used by attaching it to the body of a  
2 stereoscopic microscope, the observation device comprising:

3 an intermediate optical tube that houses a pair of relay optical systems, each relay optical  
4 system having an exit axis that is substantially parallel to the exit axis of the other relay optical  
5 system, and an image rotator; and

6 an ocular tube that houses a pair of image formation optical systems and a pair of  
7 eyepiece optical systems;  
8 wherein

9 the intermediate optical tube has a connecting portion that may be connected to the  
10 microscope body at one end and, at the other end, is ~~rotatably~~ connected to the ocular tube ~~at the~~  
11 ~~other end~~ so that the ocular tube is rotatable about an axis that is parallel to the exit axes of the  
12 pair of relay optical systems;

13 two light fluxes that pass through the pair of relay optical systems housed in the  
14 intermediate optical tube transmit through the image rotator; and

15 the image rotator is made to rotate by one-half the amount of rotation of the ocular tube  
16 about said axis that is parallel to the exit axis of the pair of relay optical systems.

1 12. (original) An observation device that is used by attaching it to the body of a stereoscopic  
2 microscope, said observation device comprising:

an intermediate tube that houses a pair of relay optical systems, each relay optical system having an exit axis that is substantially parallel to the exit axis of the other relay optical system, and an image rotator; and

an ocular tube that houses a pair of image formation optical systems and a pair of eyepiece optical systems;  
wherein

the intermediate optical tube has a connecting portion that may be connected to the microscope body at one end;

the ocular tube is extendable from, and collapsible into, the intermediate tube over a range of movement in the direction of the exit optical axes of the pair of relay optical systems; and

exit pupils of the pair of relay optical systems are arranged near a middle position of said range of movement of the ocular tube.

13. (new) A stereoscope microscope that enables a plurality of observers, including a first observer and a second observer to simultaneously observe substantially the same microscope image of an object, the stereoscopic microscope comprising:

a first observation device for use by the first observer;

a second observation device for use by the second observer;

a stereoscopic microscope body that includes an objective optical system and a pair of zoom optical systems;

a first connector that is positioned on the stereoscopic microscope body in the vicinity where the optical axis of the objective optical system intersects with the stereoscopic microscope body, said first connector for attaching the first observation device; and

a second connector that is installed on the stereoscopic microscopic body at a position that is the same level as, or above, the position that the first connector is installed on the stereoscopic microscope body;

wherein

the first connector is located at a position on the stereoscopic microscope body, in



16 relation to the optical axis of the objective optical system, that is closer to the objective optical  
17 system than is the position of the second connector; and  
18 the second connector is arranged on a surface of the microscope body separate from the  
19 first connector.

1 14. (new) A stereoscopic microscope according to claim 13, wherein the first observation device  
2 is detachably and rotatably mounted on the first connector, and the second observation device is  
3 detachably and rotatably mounted on the second connector.